CLAIM AMENDMENTS

Please amend the claims as follows:

1. (Currently Amended) An optical multi/demultiplexing circuit with a phase generating function comprising:

~~an~~ one or more optical multi/demultiplexing device including at least one input section and a plurality of output sections; and

~~an~~ at least one optical delay line device ~~connected to the~~ interposed between each of said optical multi/demultiplexing device; ~~and~~ characterized in that

at least one of said optical multi/demultiplexing devices or said optical delay line devices includes a phase generating device, wherein

said phase generating device generates a wavelength-dependent phase (Φ) corresponding to a wavelength or frequency of light in a passband of said optical multi/demultiplexing circuit.

2. (Cancelled) ~~The optical multi/demultiplexing circuit as claimed in claim 1, wherein said phase generating device is installed in said optical multi/demultiplexing device or in said optical delay line device.~~

3. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 1, wherein the phase (Φ) generated by said phase generating device is given by a function of a wavelength (λ) of light in a transmission wavelength band of said optical multi/demultiplexing circuit or by a function of an angular frequency (ω) of light in a transmission optical frequency band of said optical multi/demultiplexing circuit, and wherein the functions are a polynomial consisting of a quadratic or higher order function.

4. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim [[2]] 1, wherein the phase (Φ) generated by said phase generating device is given by a function of a wavelength (λ) of light in a transmission wavelength band of said optical multi/demultiplexing circuit or by a function of an angular frequency (ω) of light in a transmission optical frequency band of said optical multi/demultiplexing circuit, and wherein the functions are a polynomial consisting of a quadratic or higher order function.

5. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 1, wherein said phase generating device comprises ~~an~~ one or more optical couplers and ~~an~~ at least one optical delay line ~~connected with each other~~ interposed between said optical couplers, wherein the wavelength-dependent phase (Φ) is generated by appropriately setting respective coupling ratios of the optical couplers and respective optical path length differences of the optical delay lines.

6. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim [[2]] 1, wherein said phase generating device comprises ~~an~~ one or more optical couplers and ~~an~~ at least one optical delay line ~~connected with each other~~ interposed between said optical couplers, wherein the wavelength-dependent phase (Φ) is generated by appropriately setting respective coupling ratios of the optical couplers and respective optical path length differences of the optical delay lines.

7. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 3, wherein said phase generating device comprises ~~an~~ one or more optical couplers and ~~an~~ at least one optical delay line ~~connected with each other~~ interposed between said optical couplers, wherein the wavelength-dependent phase (Φ) is generated by appropriately setting respective coupling ratios of the optical couplers and respective optical path length differences of the optical delay lines.

8. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 4, wherein said phase generating device comprises ~~an~~ one or more optical couplers and ~~an~~ at least one optical delay line ~~connected with each other~~ interposed between said optical couplers, wherein the wavelength-dependent phase (Φ) is generated by appropriately setting respective coupling ratios of the optical couplers and respective optical path length differences of the optical delay lines.

9. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 5, wherein the wavelength-dependent phase in said phase generating devices is determined by ~~an amplitude~~ coupling ratios [[θ]] of said optical ~~coupler,~~ couplers and an optical path length difference [[δl]] of said optical delay ~~lines in said phase generating device, and an optical path length difference δL provided to said optical delay line device in said optical multi/demultiplexing circuit are each optimized~~ lines, and said phase (Φ) is applied to an optical path length difference provided by said optical delay line device in said optical multi/demultiplexing circuit such that

~~said phase generating device generates the phase ϕ equal to a correct phase Ψ, and functions as an optical coupler with an amplitude coupling ratio Θ~~ a transmission spectrum of the optical multi/demultiplexing circuit is corrected with the wavelength-dependent phase (Φ).

10. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 6, wherein the wavelength-dependent phase in said phase generating devices is determined by ~~an amplitude~~ coupling ratios [[θ]] of said optical ~~coupler,~~ couplers and an optical path length difference [[δl]] of said optical delay ~~lines in said phase generating device~~, and ~~an optical path length difference δL provided to said optical delay line device in said optical multi/demultiplexing circuit are each optimized~~ lines, and said phase (Φ) is applied to an optical path length difference provided by said optical delay line device in said optical multi/demultiplexing circuit such that

~~said phase generating device generates the phase ϕ equal to a correct phase Ψ, and functions as an optical coupler with an amplitude coupling ratio Θ~~ a transmission spectrum of the optical multi/demultiplexing circuit is corrected with the wavelength-dependent phase (Φ).

11. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 7, wherein the wavelength-dependent phase in said phase generating devices is determined by ~~an amplitude~~ coupling ratios [[θ]] of said optical ~~coupler,~~ couplers and an optical path length difference [[δl]] of said optical delay ~~lines in said phase generating device~~, and ~~an optical path length difference δL provided to said optical delay line device in said optical multi/demultiplexing circuit are each optimized~~ lines, and said phase (Φ) is applied to an optical path length difference provided by said optical delay line device in said optical multi/demultiplexing circuit such that

~~said phase generating device generates the phase ϕ equal to a correct phase Ψ, and functions as an optical coupler with an amplitude coupling ratio Θ~~ a transmission spectrum of the optical multi/demultiplexing circuit is corrected with the wavelength-dependent phase (Φ).

12. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 8, wherein the wavelength-dependent phase in said phase generating devices is determined by ~~an amplitude~~ coupling ratios [[θ]] of said optical ~~coupler,~~ couplers and an optical path length difference [[δl]] of said optical delay ~~lines in said phase generating device~~, and ~~an optical path length difference δL provided to said optical delay line device in said optical multi/demultiplexing circuit are each optimized~~ lines, and said phase (Φ) is applied to an optical path length difference provided by said optical delay line device in said optical multi/demultiplexing circuit such that

~~said phase generating device generates the phase ϕ equal to a correct phase Ψ, and functions as an optical coupler with an amplitude coupling ratio Θ~~ a transmission spectrum of the optical multi/demultiplexing circuit is corrected with the wavelength-dependent phase (Φ).

13. (Original) The optical multi/demultiplexing circuit as claimed in claim 9, wherein said phase generating device comprises (M + 1) optical couplers, and M optical delay lines interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

14. (Original) The optical multi/demultiplexing circuit as claimed in claim 10, wherein said phase generating device comprises (M + 1) optical couplers, and M optical delay lines interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

15. (Original) The optical multi/demultiplexing circuit as claimed in claim 11, wherein said phase generating device comprises (M + 1) optical couplers, and M optical delay lines interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

16. (Original) The optical multi/demultiplexing circuit as claimed in claim 12, wherein said phase generating device comprises (M + 1) optical couplers, and M optical delay lines interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

17. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim [[2]] 1, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

18. (Original) The optical multi/demultiplexing circuit as claimed in claim 4, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

19. (Original) The optical multi/demultiplexing circuit as claimed in claim 6, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

20. (Original) The optical multi/demultiplexing circuit as claimed in claim 8, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

21. (Original) The optical multi/demultiplexing circuit as claimed in claim 14, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

22. (Original) The optical multi/demultiplexing circuit as claimed in claim 16, wherein said optical multi/demultiplexing circuit consists of an optical interferometer, and wherein

said optical interferometer comprises (N + 1) optical multi/demultiplexing devices, and N optical delay line devices interposed between adjacent two of said optical multi/demultiplexing devices, where N is an integer equal to or greater than one.

23. (Original) The optical multi/demultiplexing circuit as claimed in claim 21, wherein said optical multi/demultiplexing circuit consists of a Mach-Zehnder interferometer including two of said optical multi/demultiplexing devices, said optical delay line device interposed between said two optical multi/demultiplexing devices, at least one input waveguide connected to one of said optical multi/demultiplexing devices, and at least one output waveguides connected to the other of said optical multi/demultiplexing devices, and wherein

said two optical multi/demultiplexing devices are disposed in left-right symmetry with respect to a middle line of said Mach-Zehnder interferometer;

said two optical multi/demultiplexing devices are a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes four optical couplers, and three optical delay lines each interposed between adjacent two of said optical couplers.

24. (Original) The optical multi/demultiplexing circuit as claimed in claim 22, wherein said optical multi/demultiplexing circuit consists of a Mach-Zehnder interferometer including two of said optical multi/demultiplexing devices, said optical delay line device interposed between said two optical multi/demultiplexing devices, at least one input waveguide connected to one of said optical multi/demultiplexing devices, and at least one output waveguides connected to the other of said optical multi/demultiplexing devices, and wherein

said two optical multi/demultiplexing devices are disposed in left-right symmetry with respect to a middle line of said Mach-Zehnder interferometer;

said two optical multi/demultiplexing devices are a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes four optical couplers, and three optical delay lines each interposed between adjacent two of said optical couplers.

25. (Original) The optical multi/demultiplexing circuit as claimed in claim 21, wherein said optical multi/demultiplexing circuit consists of a Mach-Zehnder interferometer including two of said optical multi/demultiplexing devices, said optical delay line device interposed between said two optical multi/demultiplexing devices, at least one input waveguide connected to one of said optical multi/demultiplexing devices, and at least one output waveguides connected to the other of said optical multi/demultiplexing devices, and wherein

one of said two optical multi/demultiplexing devices is a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes (M + 1) optical couplers, and M optical delay lines each interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

26. (Original) The optical multi/demultiplexing circuit as claimed in claim 22, wherein said optical multi/demultiplexing circuit consists of a Mach-Zehnder interferometer including two of said optical multi/demultiplexing devices, said optical delay line device interposed between said two optical multi/demultiplexing devices, at least one input waveguide connected to one of said optical multi/demultiplexing devices, and at least one output waveguides connected to the other of said optical multi/demultiplexing devices, and wherein

one of said two optical multi/demultiplexing devices is a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes (M + 1) optical couplers, and M optical delay lines each interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

27. (Original) The optical multi/demultiplexing circuit as claimed in claim 21, wherein said optical multi/demultiplexing circuit consists of a lattice-form filter including first to third, three, optical multi/demultiplexing devices, two optical delay line devices each interposed between adjacent two of said three optical multi/demultiplexing devices, at least one input waveguide connected to said first optical multi/demultiplexing device, and at least one output waveguide connected to said third optical multi/demultiplexing device, and wherein

said first and third optical multi/demultiplexing devices are a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes (M + 1) optical couplers, and M optical delay lines each interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

28. (Original) The optical multi/demultiplexing circuit as claimed in claim 22, wherein said optical multi/demultiplexing circuit consists of a lattice-form filter including first to third, three, optical multi/demultiplexing devices, two optical delay line devices each interposed between adjacent two of said three optical multi/demultiplexing devices, at least one input waveguide connected to said first optical multi/demultiplexing device, and at least one output waveguide connected to said third optical multi/demultiplexing device, and wherein

said first and third optical multi/demultiplexing devices are a phase generating optical coupler, which functions as a phase generating device; and

said phase generating optical coupler includes (M + 1) optical couplers, and M optical delay lines each interposed between adjacent two of said optical couplers, where M is an integer equal to or greater than two.

29. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim [[2]] 1, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

30. (Original) The optical multi/demultiplexing circuit as claimed in claim 4, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

31. (Original) The optical multi/demultiplexing circuit as claimed in claim 6, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

32. (Original) The optical multi/demultiplexing circuit as claimed in claim 8, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

33. (Original) The optical multi/demultiplexing circuit as claimed in claim 14, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

34. (Original) The optical multi/demultiplexing circuit as claimed in claim 16, wherein said optical multi/demultiplexing circuit consists of a transversal-form filter.

35. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 1, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

36. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim [[2]] 1, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

37. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 3, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

38. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 4, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

39. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 12, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

40. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 20, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

41. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 22, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

42. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 32, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

43. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 34, wherein a plurality of wave light output from said optical multi/demultiplexing device or a plurality of wave light input into said optical multi/demultiplexing device are launched into or emitted from at least one of a first slab waveguide ~~and~~ or second slab waveguide included in an arrayed waveguide grating, wherein

said arrayed waveguide grating includes array waveguides having their first ends connected to said first slab waveguide and their second ends connected to said second slab waveguide.

44. (Original) The optical multi/demultiplexing circuit as claimed in claim 10, wherein said optical multi/demultiplexing circuit comprises two of said optical multi/demultiplexing devices, and said optical delay line device comprises two optical delay lines disposed between said optical multi/demultiplexing devices, and wherein

one of said two optical multi/demultiplexing devices is connected to at least one of said input waveguides, and the other of said two optical multi/demultiplexing devices is connected to at least one of the first and the second slab waveguides of said arrayed waveguide grating.

45. (Original) The optical multi/demultiplexing circuit as claimed in claim 12, wherein said optical multi/demultiplexing circuit comprises two of said optical multi/demultiplexing devices, and said optical delay line device comprises two optical delay lines disposed between said optical multi/demultiplexing devices, and wherein

one of said two optical multi/demultiplexing devices is connected to at least one of said input waveguides, and the other of said two optical multi/demultiplexing devices is connected to at least one of the first and the second slab waveguides of said arrayed waveguide grating.

46. (Original) The optical multi/demultiplexing circuit as claimed in claim 16, wherein said optical multi/demultiplexing circuit comprises two of said optical multi/demultiplexing devices, and said optical delay line device comprises two optical delay lines disposed between said optical multi/demultiplexing devices, and wherein

one of said two optical multi/demultiplexing devices is connected to at least one of said input waveguides, and the other of said two optical multi/demultiplexing devices is connected to at least one of the first and the second slab waveguides of said arrayed waveguide grating.

47. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 11, wherein said optical delay line device or said optical delay line ~~comprises~~ includes a path length difference adjusting device, or undergoes path length adjustment.

48. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 5, wherein said optical delay line device or said optical delay line ~~comprises~~ includes a birefringent adjustment device, or undergoes birefringent adjustment.

49. (Currently Amended) The optical multi/demultiplexing circuit as claimed in claim 11, wherein said optical delay line device or said optical delay line ~~comprises~~ includes a birefringent adjustment device, or undergoes birefringent adjustment.

50. (Original) The optical multi/demultiplexing circuit as claimed in claim 1, wherein said optical multi/demultiplexing circuit is composed of silica-based glass optical waveguides.

51. (Original) The optical multi/demultiplexing circuit as claimed in claim 11, wherein said optical multi/demultiplexing circuit is composed of silica-based glass optical waveguides.

52. (Original) The optical multi/demultiplexing circuit as claimed in claim 47, wherein said optical multi/demultiplexing circuit is composed of silica-based glass optical waveguides.

53. (Original) An optical multi/demultiplexing circuit module comprising an optical multi/demultiplexing circuit as defined in claim 1 installed in a casing, and having optical fibers held by said casing carry out input and output of an optical signal to and from said optical multi/demultiplexing circuit.

54. (Original) An optical multi/demultiplexing circuit module comprising an optical multi/demultiplexing circuit as defined in claim 51 installed in a casing, and having optical fibers held by said casing carry out input and output of an optical signal to and from said optical multi/demultiplexing circuit.

55. (Original) An optical multi/demultiplexing circuit module comprising an optical multi/demultiplexing circuit as defined in claim 52 installed in a casing, and having optical fibers held by said casing carry out input and output of an optical signal to and from said optical multi/demultiplexing circuit.

56. (Original) An optical multi/demultiplexing circuit comprising a first optical multi/demultiplexing circuit as defined in claim 1, and at least one second optical multi/demultiplexing circuit as defined in claim 1, said second optical multi/demultiplexing circuit being connected to at least one of outputs of said first optical multi/demultiplexing circuit.